

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A liquid-cooled vehicle rotary electric machine operable in a motor mode or a generator mode, comprising:

a frame having an inner periphery, an outer periphery and a liquid passage that is disposed between said inner periphery and outer periphery;

a stator core having an outer periphery fixedly fitted to said inner periphery of said frame, opposite core ends and a plurality of slots;

a multi-phase stator winding accommodated in said plurality of slots, said stator winding including a plurality of U-shaped conductor segments each of which has a turn portion and a pair of legs each of which is inserted in a slot and connected to another at one of said core ends to form a joint coil end; and

a rotor rotatably supported by said frame and disposed inside said stator core so as to electro-magnetically connect said stator core;

_____ wherein:

said liquid passage is disposed near said joint coil end,

said rotor has a plurality (P) of different magnetic poles alternately disposed at prescribed intervals in the circumferential direction thereof,

said plurality of slots is disposed in said stator to increase contact area of said U-shaped conductor segments with slot inner walls, and

the number of said slots is equal to or larger than two times as many as the product of the number of said magnetic poles and the number of the phase of said stator, and

said stator winding has a plurality of conductor segments extending in a circumference around the turn portions of said U-shaped segments to be welded together to form a neutral point.

2. (Original) The liquid-cooled rotary electric machine as claimed in claim 1 having a space factor more than 55%, wherein

each of said U-shaped conductor segments comprises a flat wire.

3. (Original) The liquid-cooled vehicle rotary electric machine as claimed in claim 1, wherein

said stator core and said stator winding are liquid-tightly enclosed by said frame.

4. (Original) The liquid-cooled rotary electric machine as claimed in claim 1, wherein

each of said legs inserted in said plurality of slots is closely fitted to one of said plurality of slot via an insulator.

5. (Canceled)

6. (Original) The liquid-cooled rotary electric machine as claimed in claim 1, wherein

said stator winding has a plurality of coil ends formed of said u-shaped conductor segments separated from each other,

each of said coil ends is covered by and filled with insulating material, and said insulating material is closely fitted to said frame.

7. (Original) The liquid-cooled rotary electric machine as claimed in claim 1, wherein

said stator winding is supplied with larger current at said motor mode than current generated at said generator mode.

8. (Previously Added) The liquid-cooled vehicle rotary electric machine as claimed in claim 1, wherein said joint coil end is spaced more than 2 mm from said frame.

9. (Previously Added) The liquid-cooled vehicle rotary electric machine as claimed in claim 1, wherein a space is defined between adjacent conductor segments at said joint coil end.

10. (Currently Amended) A liquid-cooled vehicle rotary electric machine operable in a motor mode or a generator mode, comprising:

a frame having an inner periphery, an outer periphery and including a first frame portion and a second frame portion, said first frame portion having a liquid passage disposed between said inner periphery and outer periphery;

a stator core having an outer periphery, first and second core ends and a plurality of slots, said first core end being fitted to the inner periphery of said first frame portion and said second core end being fitted to said inner periphery of said second frame portions;

a multi-phase stator winding accommodated in said plurality of slots, said stator winding including a plurality of U-shaped conductor segments each of which has a pair of legs each of which is inserted in a slot and connected to another at said first core end to form a joint coil end; and

a rotor rotatably supported by said frame and disposed inside said stator core so as to electro-magnetically connect said stator core;

_____wherein:

said rotor has a plurality of different magnetic poles alternately disposed at prescribed intervals in the circumferential direction thereof,

said plurality of slots is disposed in said stator to increase contact area of said U-shaped conductor segments with slot inner walls, and

the number of said slots is equal to or larger than two times as many as the product of the number of said magnetic poles and the number of the phase of said stator, and
said stator winding has a plurality of conductor segments extending in a
circumference around the turn portions of said U-shaped segments to be welded together to
form a neutral point.

11. (New) The liquid-cooled vehicle rotary electric machine as claimed in claim 1, wherein said frame comprises:

a front frame having a front wall and a cylindrical wall extending in an axial direction from said front wall, the cylindrical wall defining said inner periphery and said outer periphery, said front wall and said cylindrical wall defines an inner cavity in which said stator, said multiphase stator winding and said rotor are housed, said liquid passage being provided in both said front wall and said cylindrical wall, and

a rear frame attached to an axial end of said cylindrical wall, and wherein said joint coil end is located in a corner defined by said front wall and said cylindrical wall.

12. (New) The liquid-cooled vehicle rotary electric machine as claimed in claim 11, further comprising:

a stationary yoke fixed to said front wall; and

a field coil supported by said stationary yoke, wherein said stationary yoke is located so as to supply magnetic flux to said rotor.

13. (New) The liquid-cooled vehicle rotary electric machine as claimed in claim 12, further comprising:

a shaft which is connected with said rotor and rotatably supported by said front wall, wherein said rotor is driven through said shaft.

14. (New) The liquid-cooled vehicle rotary electric machine as claimed in claim 13, wherein said liquid passage has a wider cooling surface than others at a portion in said frame opposite said stationary yoke.

15. (New) The liquid-cooled vehicle rotary electric machine as claimed in claim 11, further comprising:

a heat-conductive resin member in which said joint coil end is molded is disposed on said corner in a manner that the heat-conductive resin member is in direct contact with said corner.

16. (New) The liquid-cooled vehicle rotary electric machine as claimed in claim 15, wherein said liquid passage has a wider cooling surface than others at a portion in said frame opposite said heat-conductive resin member.

17. (New) The liquid-cooled vehicle rotary electric machine as claimed in claim 10, wherein said frame comprises:

a front frame having a front wall and a cylindrical wall extending in an axial direction from said front wall, the cylindrical wall defining said inner periphery and said outer periphery, said front wall and said cylindrical wall defines an inner cavity in which said stator, said multiphase stator winding and said rotor are housed, said liquid passage being provided in both said front wall and said cylindrical wall; and

a rear frame attached on an axial end of said cylindrical wall, wherein said joint coil end is located in a corner defined by said front wall and said cylindrical wall.

18. (New) The liquid-cooled vehicle rotary electric machine as claimed in claim 17, further comprising:

a stationary yoke fixed to said front wall; and

a field coil supported by said stationary yoke, wherein said stationary yoke is located so as to supply magnetic flux to said rotor.

19. (New) The liquid-cooled vehicle rotary electric machine as claimed in claim 18, further comprising:

a shaft which is connected with said rotor and rotatably supported by said front wall, wherein said rotor is driven through said shaft.

20. (New) The liquid-cooled vehicle rotary electric machine as claimed in claim 19, wherein said liquid passage defines an enlarged gallery in said frame has a wider cooling surface than others at a portion opposite said stationary yoke.

21. (New) The liquid-cooled vehicle rotary electric machine as claimed in claim 17, further comprising a heat-conductive resin member in which said joint coils end is molded is disposed on said corner in a manner that the head-conductive resin member is in direct contact with said corner.

22. (New) The liquid-cooled vehicle rotary electric machine as claimed in claim 21, wherein said liquid passage defines a wider cooling surface than others at a portion in said frame opposite said heat-conductive resin member.